

REMARKS

In section 1 of the Office Action, the Examiner rejected claims 4-6 and 13-17 under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 4-6 and 13-17 are cancelled.

In section 3 of the Office Action, the Examiner rejected claims 24-27 under 35 U.S.C. §112, first paragraph, as being directed to non-statutory subject matter.

In the Office Action, the Examiner applied various combinations of references to reject the claims of the present application. However, these references, taken either alone or in combination, do not disclose or suggest the present claims 30-43.

Independent claim 30 is directed to a control system comprising a linear controller, first, second, and third multipliers, first and second summers, a scaler, and first and second delays, and a non-linear instrument. The linear controller outputs a first signal. The first multiplier has a first input coupled to receive the first signal. The first summer has a first input coupled to an output of the first multiplier. The scaler has an input coupled to an output of the first summer. The first delay has an input coupled to an output of the scaler and

an output coupled to a second input of the first summer, and the output of the first delay provides a second signal that is a square root of the first signal. The second multiplier has a first input coupled to the output of the first delay. The second summer has a first input coupled to an output of the second multiplier and a second input coupled to a constant. The third multiplier has a first input coupled to an output of the second summer and an output coupled to a second input of the first multiplier. The second delay has an input coupled to an output of the third multiplier and has an output coupled to second inputs of the second and third multipliers. The non-linear instrument is coupled to receive the second signal, and the second signal is a pre-distorted form of the first signal such that the non-linear instrument provides a linear output with respect to the first signal.

None of the references applied by the Examiner discloses or suggests a system that pre-distorts a signal so that the output of a non-linear instrument becomes linear with respect to the signal.

Accordingly, independent claim 30, and claims 31-36 dependent thereon, are patentable over the art applied by the Examiner.

Independent claim 37 is directed to a control system comprising first, second, and third multipliers, first and second summers, a scaler, first and second delays, and a non-linear instrument. The first multiplier has a first input coupled to receive a first signal. The first summer has a first input coupled to an output of the first multiplier. The scaler has an input coupled to an output of the first summer. The first delay has an input coupled to an output of the scaler and an output coupled to a second input of the first summer, and the output of the first delay provides a second signal that is a square root of the first signal. The second multiplier has a first input coupled to the output of the first delay. The second summer has a first input coupled to an output of the second multiplier and a second input coupled to a constant. The third multiplier has a first input coupled to an output of the second summer and an output coupled to a second input of the first multiplier. The second delay has an input coupled to an output of the third multiplier and has an output coupled to second inputs of the second and third multipliers. The non-linear instrument is coupled to receive the second signal, and the second signal is a pre-distorted form of the first signal such that the non-

linear instrument provides a linear output with respect to the first signal.

None of the references applied by the Examiner discloses or suggests a system that pre-distorts a signal so that the output of a non-linear instrument becomes linear with respect to the signal.

Accordingly, independent claim 37, and claims 37-43 dependent thereon, are patentable over the art applied by the Examiner.

Independent claim 44 is directed to a control system comprising first, second, third, and fourth multipliers, first and second summers, a scaler, first and second delays, and a non-linear instrument. The first multiplier has a first input coupled to receive a first signal. The first summer has a first input coupled to an output of the first multiplier. The scaler has an input coupled to an output of the first summer. The first delay has an input coupled to an output of the scaler and an output coupled to a second input of the first summer, and the output of the first delay providing a second signal that is a square root of the first signal. The second multiplier has a first input coupled to the output of the first delay. The second summer has a first input coupled to an output of the second

multiplier and a second input coupled to a constant. The third multiplier has a first input coupled to an output of the second summer and an output coupled to a second input of the first multiplier. The second delay has an input coupled to an output of the third multiplier and has an output coupled to second inputs of the second and third multipliers. The fourth multiplier has first and second inputs and an output, the first input of the fourth multiplier is coupled to an output of the first delay, the second input of the fourth multiplier receives a sign of the first signal, and the output of the fourth multiplier provides a third signal that is a square root of the first signal and that has the sign of the first signal. The non-linear instrument is coupled to receive the third signal, and the third signal is a pre-distorted form of the first signal such that the non-linear instrument provides a linear output with respect to the first signal.

None of the references applied by the Examiner discloses or suggests a system that pre-distorts a signal so that the output of a non-linear instrument becomes linear with respect to the signal.

Accordingly, independent claim 44, and claims
45-49 dependent thereon, are patentable over the art
applied by the Examiner.

CONCLUSION

In view of the above, it is clear that the claims of the present invention are patentable over the art applied by the Examiner. Accordingly, allowance of these claims and issuance of this patent application are respectfully requested.

Respectfully submitted,

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